

OFFICE COPY

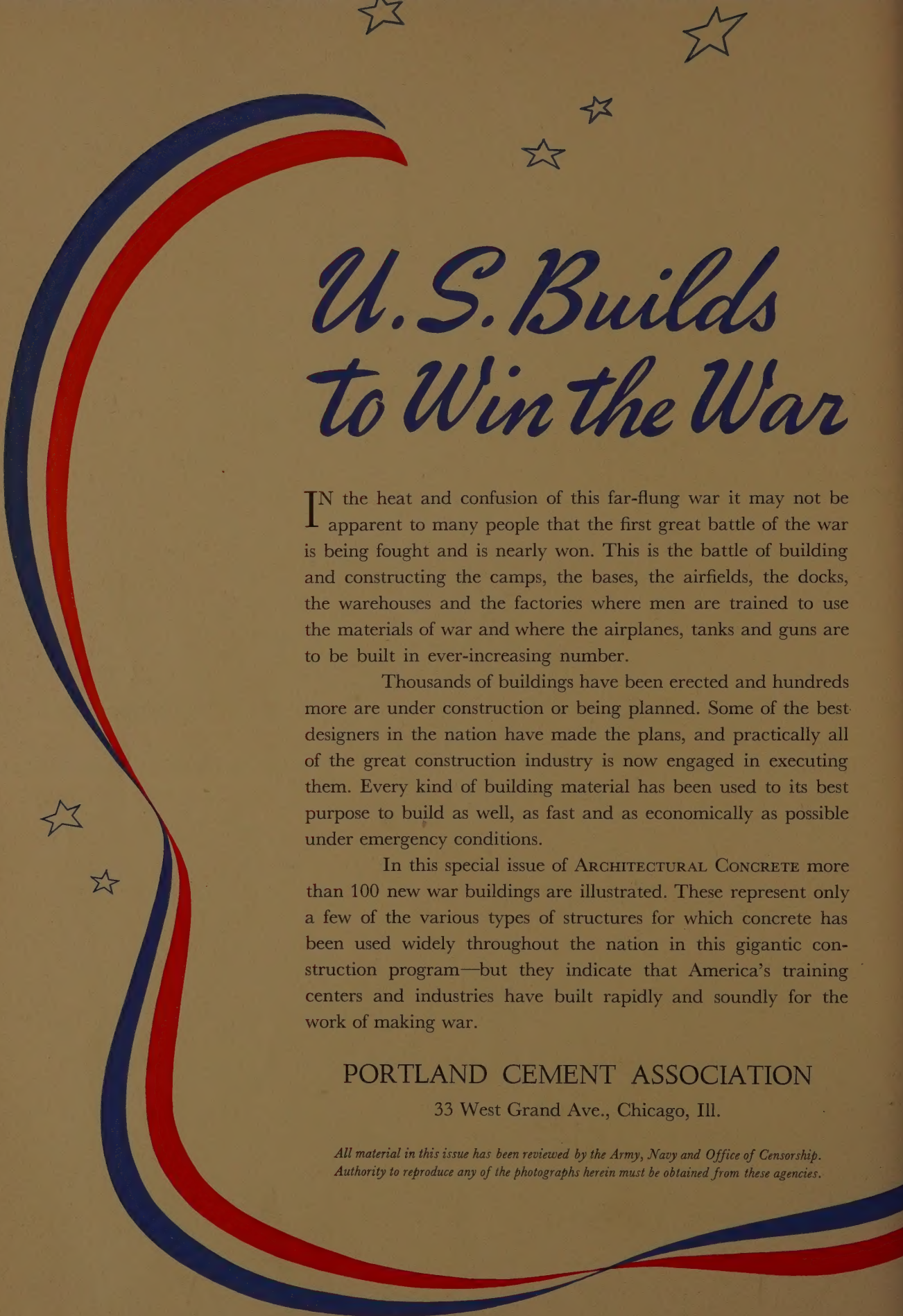
# ARCHITECTURAL CONCRETE

VOLUME EIGHT

NUMBER TWO



OFFICIAL U.S. NAVY PHOTO



# U. S. Builds To Win the War

IN the heat and confusion of this far-flung war it may not be apparent to many people that the first great battle of the war is being fought and is nearly won. This is the battle of building and constructing the camps, the bases, the airfields, the docks, the warehouses and the factories where men are trained to use the materials of war and where the airplanes, tanks and guns are to be built in ever-increasing number.

Thousands of buildings have been erected and hundreds more are under construction or being planned. Some of the best designers in the nation have made the plans, and practically all of the great construction industry is now engaged in executing them. Every kind of building material has been used to its best purpose to build as well, as fast and as economically as possible under emergency conditions.

In this special issue of ARCHITECTURAL CONCRETE more than 100 new war buildings are illustrated. These represent only a few of the various types of structures for which concrete has been used widely throughout the nation in this gigantic construction program—but they indicate that America's training centers and industries have built rapidly and soundly for the work of making war.

PORTLAND CEMENT ASSOCIATION

33 West Grand Ave., Chicago, Ill.

*All material in this issue has been reviewed by the Army, Navy and Office of Censorship.  
Authority to reproduce any of the photographs herein must be obtained from these agencies.*

# Naval Air Stations

ONE of the major construction jobs of the war has been the building of naval air stations for the protection of shore bases and facilities and for the training of an air fighting force for the largest fleet ever to sail the world's waterways.

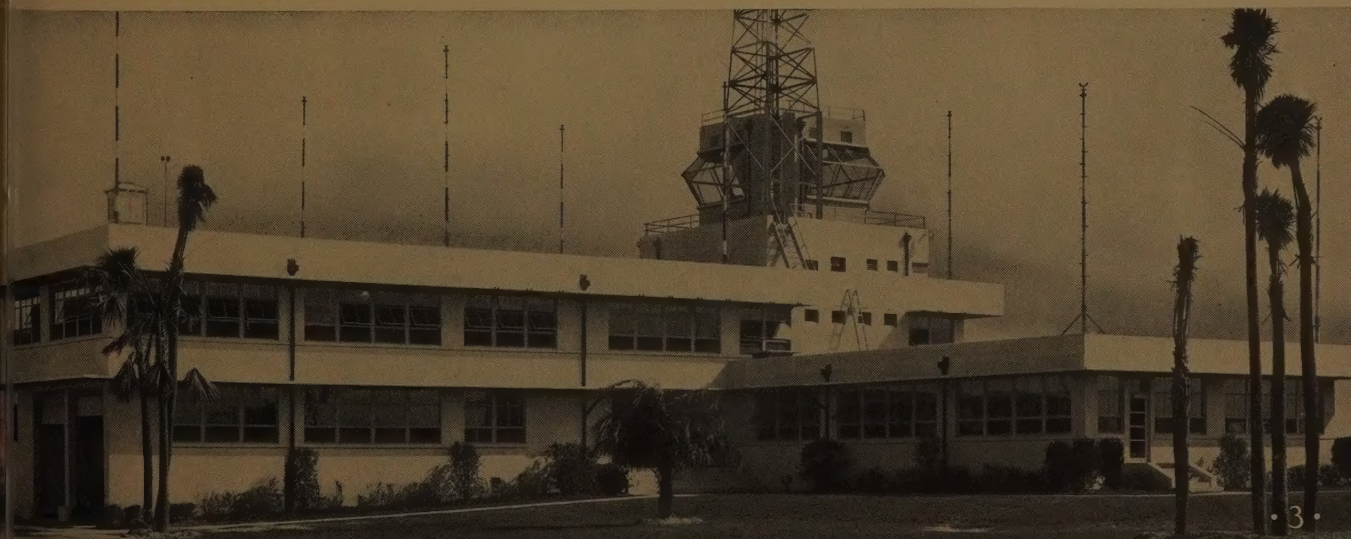
This building program started about two years ago and was well advanced at the time America was forced into a declared war. Construction is continuing today, although the large training centers are now equipped to turn out thousands of pilots, navigators, mechanics, metallurgists, ordnance and radio men.

Since many of these air stations are considered permanent military establishments, construction has been largely of a permanent type. In this work concrete has had an important use, not only for runways and taxiways, but for construction of hangars, repair shops, warehouses, operations buildings and living quarters for enlisted men.



*"On the line" and ready for take-off at a naval air station, are these North American single-wing scout trainers. Official U. S. Navy Photo.*

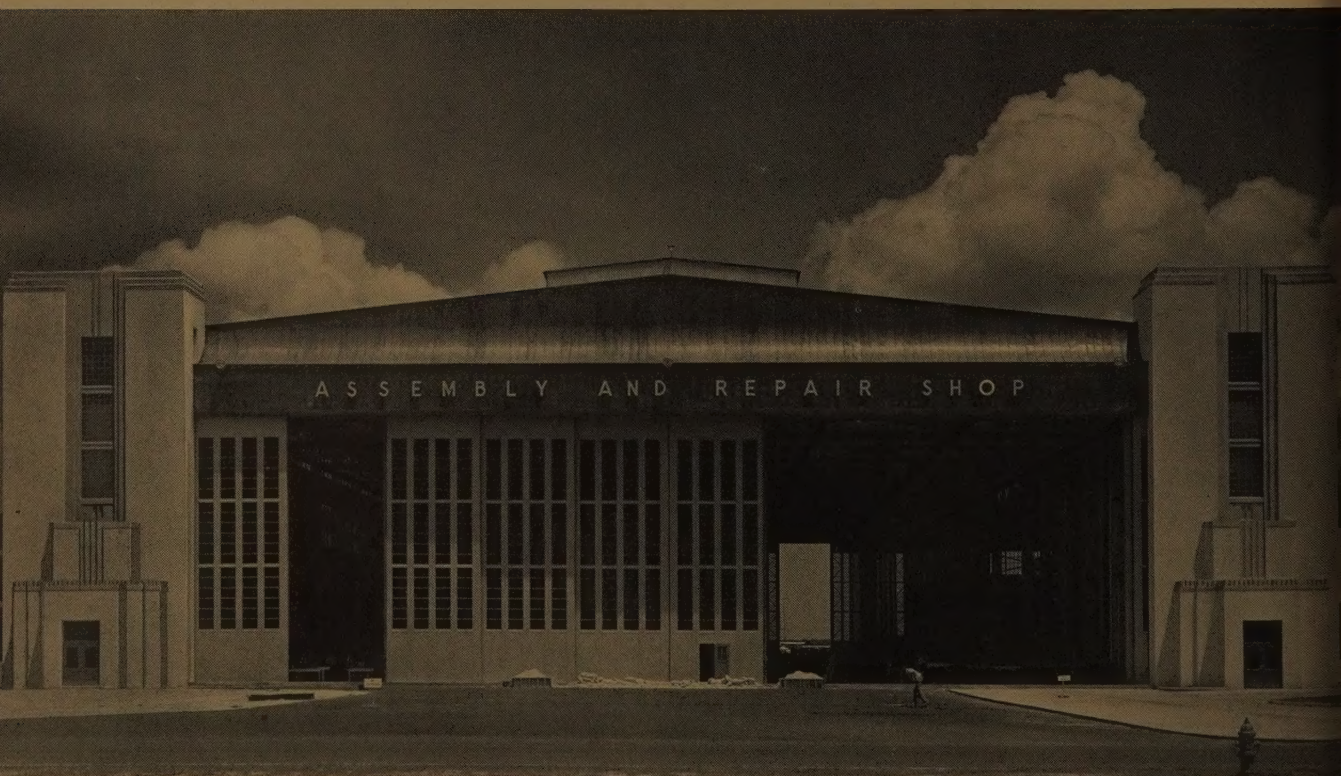
Important to planes flying above this naval air station is the architectural concrete operations building where a direct communications system provides a way contact between station and planes. Designed by the Navy Bureau of Yards and Docks, it was built by North-Eastern Construction Co. of Boston-Salem, N. C. Official U. S. Navy Photo.

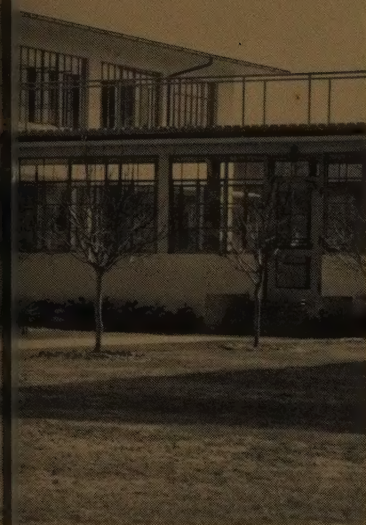




*Barracks No. 2 is typical of the modern, firesafe quarters provided for enlisted men attached to an East Coast air station. Plans were prepared by Albert Kahn, Inc., of Detroit, and Robert & Co., Atlanta. Artley Co., of Savannah, Ga., was the builder. PCA Photo.*

*The huge assembly and repair shop at a Southern naval air station covers 7½ acres of ground with various buildings, many of which employ architectural concrete for walls. Seven contractors took part in construction of the group: Smith & Pew Construction Co., Atlanta; Jones & Laughlin, New Orleans; Doyle & Russell, Richmond, Va.; George D. Auchter Co., Jacksonville; Batson-Cook Co., West Point, Ga. and the Duval Engineering & Contracting Co., Jacksonville. Robert & Co., of Atlanta, was the architect. Official U. S. Navy Photo.*





entrance to assembly and repair shop at  
naval air station. Concrete is employed to  
produce simple but interesting molded detail.  
portion of the building is finished with  
portland cement paint. PCA Photo.



recreation building at a naval air station. Bowling, billiards, good books, refreshments and top-notch entertainment are provided station  
personnel in this modern architectural concrete building. Batson-Cook Co., West Point, Ga., and Duval Engineering & Contracting Co.,  
Jacksonville, were contractors. Robert & Co., of Atlanta, was architect. PCA Photo.



*mess hall, part of the enlisted men's barracks*

*the most avoided building at the station—fo  
Co., Savannah, contractor. PCA Photo.*



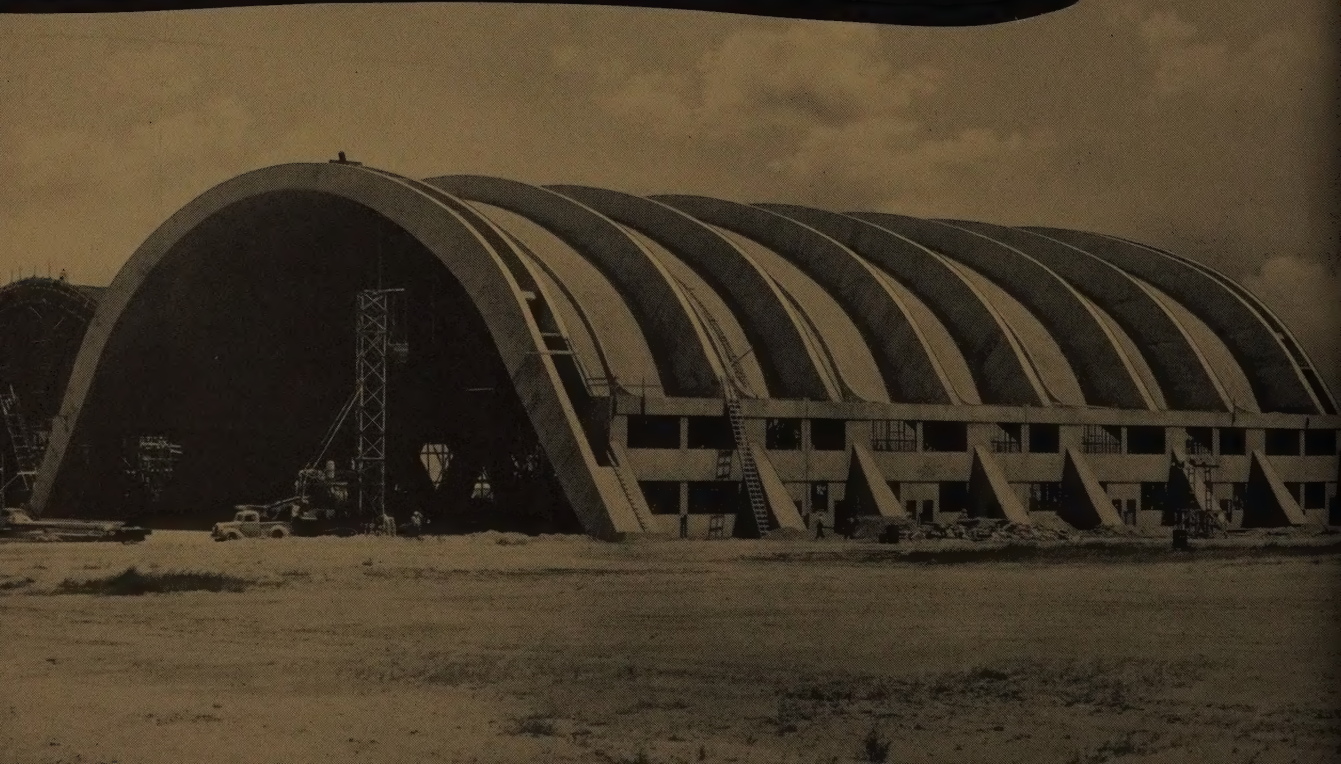
3 Naval air stations require  
length-running supply de-  
partments. At one of the new  
flying schools, this work  
is carried on in a huge, heavy-  
weight, firesafe concrete build-  
ing. A cantilevered concrete  
balcony shelters the loading  
dock running the length  
of the building, which was  
designed by Robert & Co., of  
Atlanta, and built by Hillyer  
& Donovan, Jacksonville, con-  
tractors. PCA Photos.





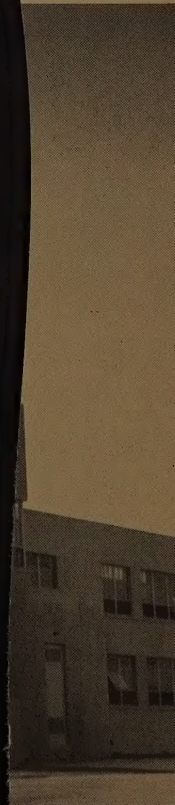
*e of modern factory-type str*

*orted by arch ribs provide cle*  
*architect, Washington, D. C.*





ing and tower of  
ern naval air  
architectural  
designed by  
chitects, of  
Virginia  
ort News,  
Photos.



# Naval Shore Structures

NAVY YARDS existing up to the present emergency were among the oldest military establishments in the U. S. To keep pace with modern requirements and a vastly enlarged fleet has necessitated not only additional facilities at older yards but construction of new bases and depots. This work has been carried on for several years and has been intensified in recent months.

Many of the new buildings at yards and depots are industrial-type structures of permanent construction. Architectural concrete has been used widely for shops, storage and supply buildings and elaborate laboratory and hospital structures.



*A naval experimental model basin, recently built, applies new construction methods. These cast stone forms of 2-in. thickness provide the exterior finish.*

*Stores and accessories building at an enlarged navy yard is windowless for many stories of its broad concrete walls. Designed by the U. S. Navy Photos.*





scale construction. Walls of the office building shown here are reinforced concrete cast against outside forms of decorative cast stone. Designed by the Bureau of Yards and Docks, U. S. Navy, it was built by Turner Construction Co., of New York. Official U. S. Navy Photo.



views (above and below) of a new Maritime Commission training school in the South which is training men to operate the vital merchant fleet. Designed by Public Buildings Administration, it was built by A. Farnell Blair, contractor, of Decatur, Ga. Photos from Maritime Commission.





Buildings in the industrial Midwest naval depot are of structural concrete left in natural concrete color. Graham & Keefe architects; R. B. Moore Construction Co., of Indianapolis, construction contractor for all buildings at the depot. PCA Photo.



Garage and repair shop at the depot are logically combined in this did looking structure. There is room for 20 vehicles. Walls reveal exceptionally careful forming. PCA Photo.



Neatness is a military necessity. The maintenance staff at the depot starting out with very few quarters, should have very little trouble keeping the depot's concrete structures in top condition always. PCA Photo.



Getting the job done at the depot meant disregarding the seasons. Construction went on during the summer and winter of 1941. The concrete in the forms was protected from winter blasts. PCA Photo.



ine barracks at same naval depot show the careful formwork responsible for the quality concrete surfaces throughout the depot. PCA Photo.



One of the finest coast guard stations in the country is located at a Great Lakes port. Designed by F. Milton Dyer, Cleveland architect, under Division Civil Engineers Office of U. S. Coast Guard, it was built by The Albert M. Higley Co., of Cleveland. Ackerman Photo.

Part of the cafeteria at an East Coast navy yard is shown at right. In foreground foundations for new concrete buildings are being cured under winter conditions. At left are other new concrete industrial buildings at the yard. PCA Photo.





*Electric shop at same navy yard is a two-story factory structure with rustications around upper window level. Designed by Navy Yard Public Works Department and built by WPA. PCA Photo.*



*Pipe shop, one of the larger new concrete buildings at the navy yard, was designed by Bureau of Yards and Docks and built by Belmont Iron Works Co., Philadelphia. PCA Photo.*



*Twin structures in the industrial area of a big Eastern navy yard are the sheet metal and paint shop (left) and the rigger and laborer's shop (right) joined by a single-story concrete unit. Simons & Lapham, of Charleston, S. C., were architects for rigger shop, which was built by Harrison-Wright Co., of Charlotte, N. C. Navy Yard Public Works Department designed the sheet metal shop and WPA built it. PCA Photo.*



*Barracks at new naval research laboratory. Designed by Bureau of Yards and Docks and built by Charles H. Tompkins, contractor for all new concrete buildings at the laboratory. Official U. S. Navy Photo.*



*Instrument repair and storage building at naval observatory. Designed by Bureau of Yards and Docks and built by Charles H. Tompkins, Washington, D. C., contractor. Official U. S. Navy Photo.*



*Temporary aircraft radio building is a plain shop structure erected in concrete at an enlarged naval research laboratory. Official U. S. Navy Photo. Another shop structure at same naval research laboratory is the emergency radio laboratory. Official U. S. Navy Photo.*





16 building of new naval medical center. This building has an exterior of 2-in. exposed aggregate cast stone with masonry backup. The entire group of buildings was designed by the Bureau of Yards and Docks. John McHugh, Inc., of Philadelphia, was contractor. Official U. S. Navy Photos.



Disassembly at an Eastern navy yard, was designed by Williams, Coile & Co., architects of Newport News, Va. It is nearly completed by McHugh & Associates, contractors of New York. Official U. S. Navy Photo.



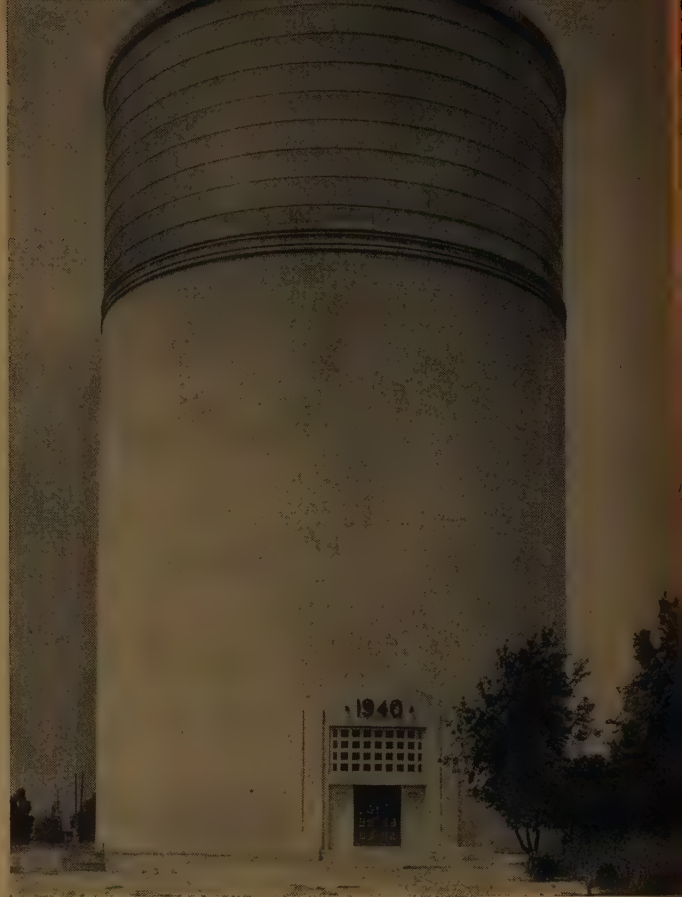
(Left and below) Two concrete stores, and transportation buildings at an Eastern navy yard were designed and supervised by the Navy Yard Public Works Department. Official U. S. Navy Photo.





# U. S. Army

ONE of the biggest construction jobs facing the land armies of the U. S. was to build training centers for hundreds of thousands of new soldiers. This involved a large amount of temporary construction. In addition to this there has been a great deal of permanent construction at depots and arsenals where warehouses and industrial structures require firesafety and heavy-duty floors. Concrete has been used widely in the construction of permanent buildings as well as for sanitary facilities at training camps.



*One million-gallon elevated tank at an Eastern training center was designed J. N. Pease & Co., engineers and architects, of Charlotte, N. C. MacDonald Engineering Co., Chicago, contractor. This is a Hewett System design. Official U. S. Army Photo.*



*Armor plate range (above) and firing stockade (below) at a War Department proving grounds are architectural concrete. Official U. S. Army Photo.*



U. S. Engineer Department field  
 house, near a Gulf Coast town. It  
 was designed by the U. S. Engi-  
 neers and built by Rheiner & Son,  
 Contractors, of San Antonio. Photo  
 by U. S. Engineers.



Concrete cold storage plant at a  
 southwest army camp is typical of  
 many other cold storage plants at  
 camps and training centers through-  
 out the country. It has 10-in. con-  
 crete walls, is cork lined. Designed  
 by Quartermaster Corps, it was  
 built by Harmon Construction Co.,  
 Oklahoma City.



Combined mess halls and kitchens  
 buildings at a new army camp.  
 Designed by the Quartermaster  
 Corps, Washington, D. C., and  
 built by WPA.



Post office at same post is a con-  
 crete building, one of several built  
 by WPA from designs prepared by  
 the Quartermaster Corps.



Rendering of administration build-  
 ing, at a Midwest arsenal. This  
 building, as well as other new  
 structures at the arsenal, was  
 designed by Construction Quar-  
 termaster Office, 6th Corps Area, and  
 is being built by Priester Construc-  
 tion Co., Davenport, Iowa.

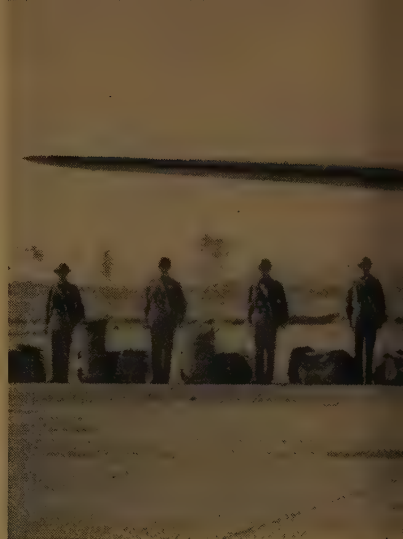




*Newly completed building at one of the Government's enlarged arsenals. It is architectural concrete. Official U. S. Army Photo.*

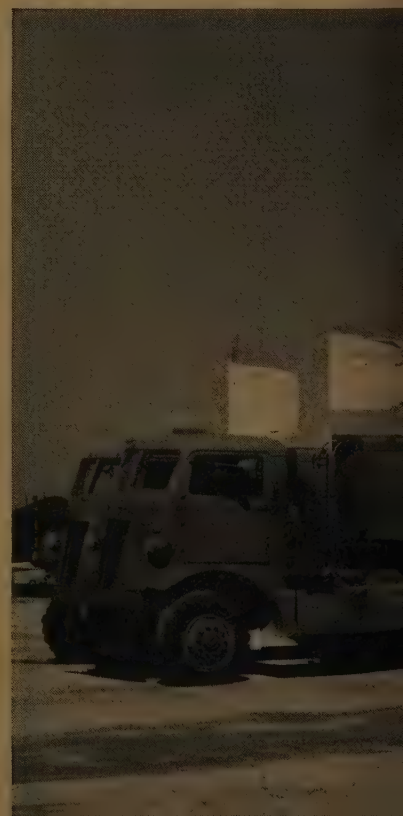


*Exterior and interior views of a stores warehouse built for the U. S. Army. It has a multiple-barrel roof supported by arch ribs. Photos from U. S. Engineers.*



*Lined up on one of the broad concrete aprons at an army airfield, is a Consolidated B-24 bomber and its ground crew. Photo by Army Air Corps.*

*One of several large hangars at a Southern airfield. These huge structures have architectural concrete walls, concrete floors and steel roof trusses. Air corps plans were executed by Central Contracting Co., Dallas, contractor for all the hangars at the base. PCA Photo.*





## Army Airfields and Bases

ALL over America from coast to coast there are scores of army airfields, bases and depots. Many have been in existence for a long time, some are new, but all are being enlarged as rapidly as possible to train fighting pilots and ground crews to man the thousands of planes that are needed to win this war.

Every type of building material available to the great construction industry of the nation has been used to erect

the operations buildings, hangars, laboratories, supply warehouses and other functional units at these establishments. The adaptability of concrete to unusual structural forms and its firesafety and resistance to natural hazards have given this material an important role in this huge program.

Some of the architectural concrete buildings erected at army airfields and bases in recent months are shown here and on following pages.





*During a hurricane storm warning in September, 1941, large bombers at one Gulf Coast field were flown away from the threatened area and small training ships in the region were flown to the field and stored in the huge concrete hangars for protection. The storm did not materialize, but the Army was ready for it. Photo by Army Air Corps.*

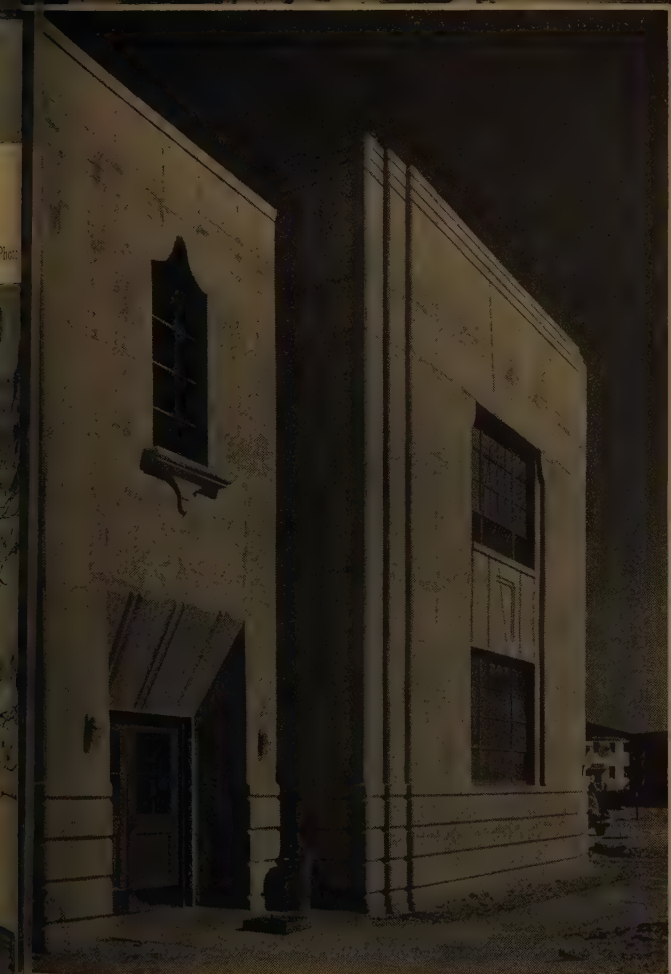


*Utilities building, part of the Quartermaster group at an army airfield. A. J. Honeycutt Co., Birmingham, contractor. PCA Photo*





*Side wall of an operations hangar. The curve-walled single-story portion at right houses the operations office. PCA Photo.*



*This Base Quartermaster building has a two-story office portion and one-story wings fronted by loading docks. It is architectural concrete finished with portland cement paint. A. J. Honeycutt Co., Birmingham, contractor. PCA Photo.*



*A deep reveal at this secondary entrance to one of the hangars at a new airfield indicates excellent quality of the concrete work throughout this base. PCA Photo.*



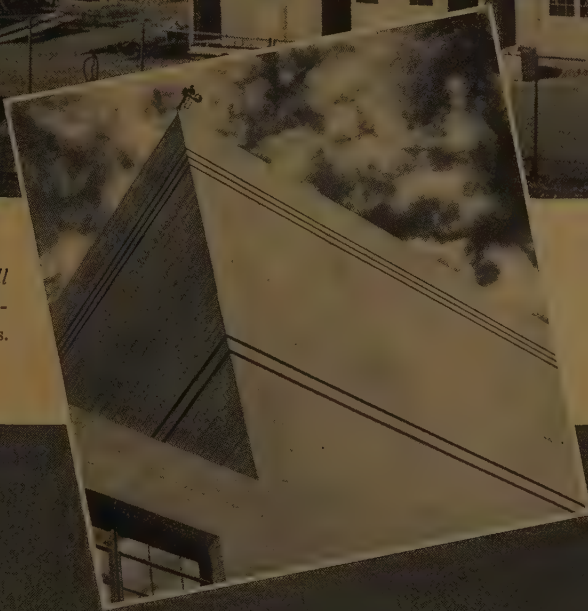
*A new Quatermaster supply building. Concrete at pilasters and corners is formed with rustications to simulate quoins. The finish is portland cement paint. Design adapted from standard plans. PCA Photo.*



*Headquarters building, one of many architectural concrete structures at a West Coast airfield. Designed by Quatermaster Corps, built by Azevedo Construction Co., Sacramento. U. S. Army Air Corps Photo.*

*One of the first buildings at this large airfield was the 25-bed hospital unit. Designed by Quatermaster Corps and built by MacDona Kahn Co., San Francisco. U. S. Army Air Corps Photo.*

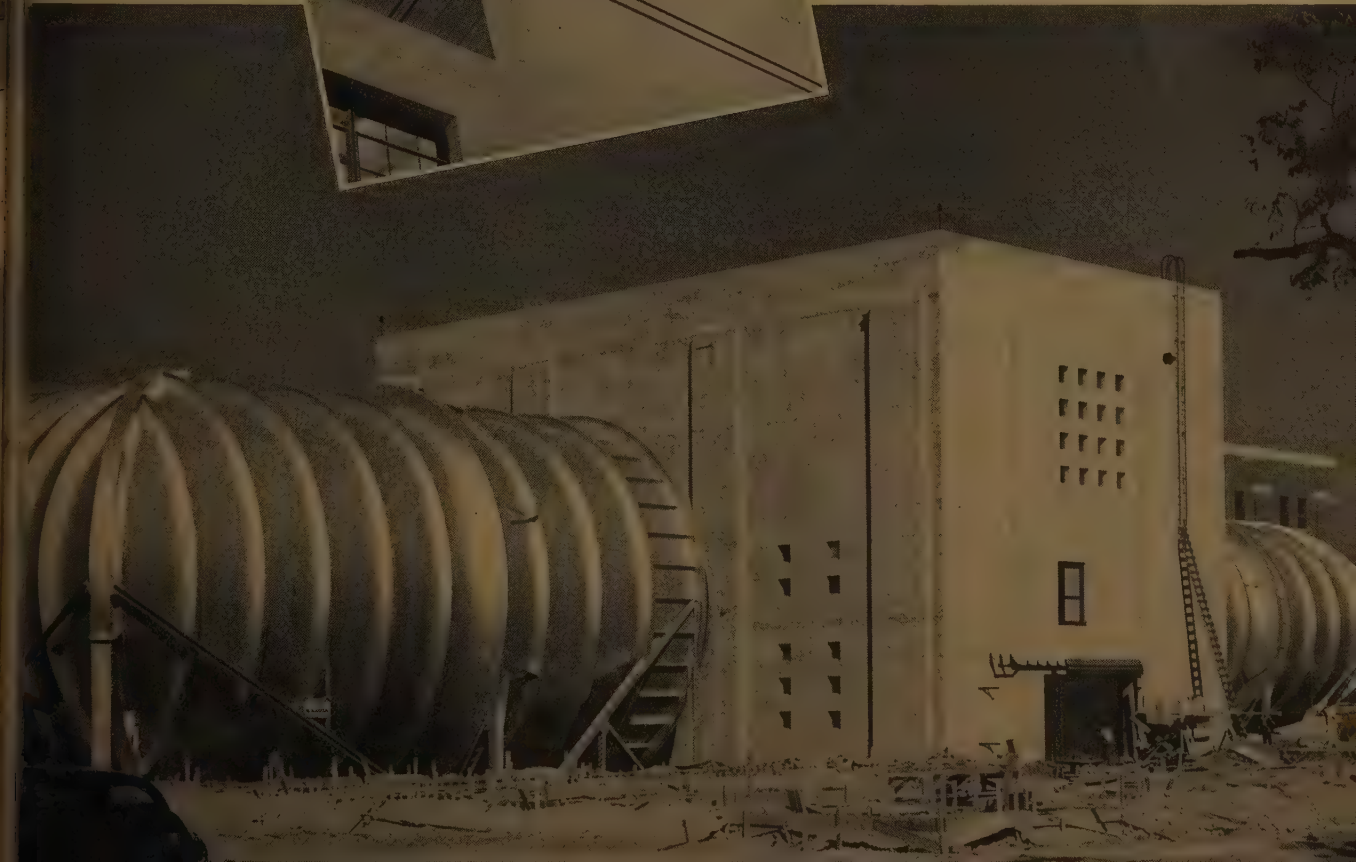




Detail of torque stand wall  
showing pleating board-  
marked texture. PCA Photos.

*Torque stands at a Midwest airfield were designed by the Quartermaster Corps, Washington, D. C. Built by Simpson Construction Co., Chicago.*

*Architectural concrete was used for the main chamber of this wind tunnel. Designed by the Quartermaster Corps and built by National Concrete Fireproofing Co., Cleveland, Ohio. PCA Photo.*



Row of architectural concrete hangars at another West Coast field. Scores of concrete structures at this field were designed by the Quartermaster Corps. Signal Corps Photo.



Concrete barrel roofs covering the engineering shop building of a laboratory at a large experimental field. This structure (drawings below) was designed by the Engineers at the field and Roberts & Schuchman Co., engineers, of Chicago. National Concrete Fireproofing Co., Cleveland, contractor. Keen Photo.



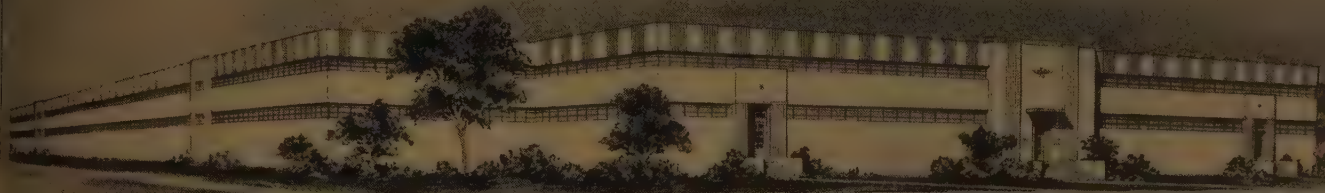
*Drawing of main elevation of same laboratory showing hangars flanked by concrete towers.*



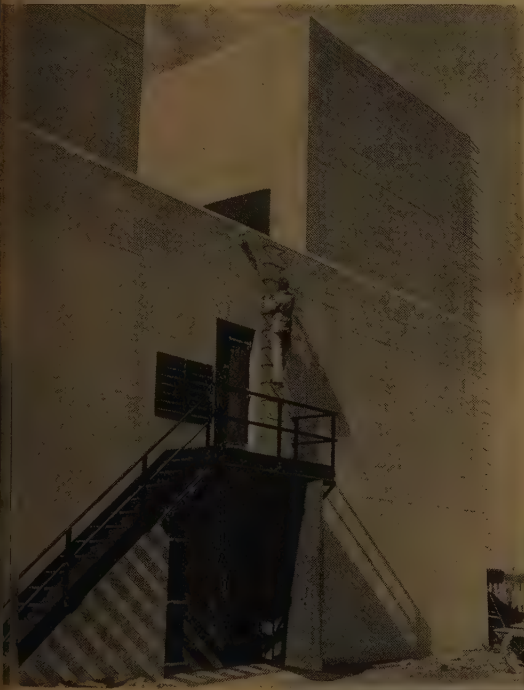
*North elevation of the engineering shop building of laboratory.*



Front elevation of the twin administration buildings at a Midwest airfield. These are L-shaped concrete structures. J. Gordon Turnbull, Inc., architect, Cleveland; and Sverdrup & Parcel, engineers, St. Louis. Charles H. Shook, Inc., Dayton, Ohio, the contractor.



Side view of air service command building, at another Midwest field. This large concrete building is being constructed under the supervision of the U. S. Engineer Corps. J. Gordon Turnbull, Inc., architects, and Sverdrup & Parcel, engineers. James I. Barnes, contractor, of Dayton, Ohio.



South elevation of hangar of air corps laboratory showing control tower.

Two views of engine test building, located at a main air force field. This structure is made of board-marked concrete. The structure was designed by the Quartermaster Corps, Washington, D. C., and built by Charles H. Shook, Inc., Dayton. U. S. Army Engineer Corps Photos.



# National

PUBLIC WORKS programs taken as long ago as 1934 were responsible for the completion of hundreds of armories and national guard facilities at the time the United States went to war. Many of these buildings were sponsored by state armory boards, but many more were local projects financed in part by the federal government and cities which recognized the value of such buildings as community centers.

(Top) Armory for Columbia, Mo., completed in 1940, was designed by Deering & Clark, Columbia architects, and built by WPA. PCA Photo.

(Second from top) Warren Roberts, Chillicothe, Mo., architect, designed the Chillicothe Armory built in 1940 by WPA workers. PCA Photo.

(Right) Another 1940 armory is this large structure at Hiawatha, Kan., designed by Robert Reynolds, of Hiawatha. PCA Photo.

(Right) Roofs of many Illinois armory drill halls are supported by two-hinged rigid frame concrete bents. Interior of Dixon, Ill., Armory. PCA Photo.

In the circles below are details of three Illinois armories: (Left) cast-in-place eagles at Sycamore, Ill.; (middle) side entrance to Champaign, Ill., Armory; and (right) main entrance to Lawrenceville, Ill., Armory. PCA Photos.



# Armories

public assembly in peacetime. These buildings have been generated to meet local requirements; appearance and location, they offer a great variety of architectural facts. Because concrete proved so valuable to the economics of emergency construction work, architectural concrete was widely used in armory construction throughout the nation.



(Top) Harrisburg, Pa., Armory was completed in 1937. Edmund George Good, Jr., architect, and J. E. Schreadley, contractor, of Harrisburg.



(Second from top) One of many concrete buildings in Salinas, Calif., is this armory. Architect, Guy O. Knoepp, of Carmel; built by Guth & Fox, Sacramento. PCA Photo.



(Left) General view of the Pontiac, Ill., armory, one of many similar structures throughout the state. PCA Photo.

(Below) National guard armory at Urbana, Ill., is typical of 11 others in state. S. Milton Eichberg, supervising architect, Chicago. Built by WPA. PCA Photo.





*The two naval armories shown here are at Indianapolis (above) and Michigan City, Ind. (below). Inset shows entrance of Indianapolis Armory. B. H. Bacon & John Parrish, architects, of Indianapolis. The buildings were completed in 1938 by the Indiana WPA. PCA Photos.*





*Interesting wall texture at Darlington, Ind., Armory was produced by board forms. B. H. Bacon & John P. Parrish were architects; WPA, the builder. PCA Photo.*



*Unit D is one of six in the Memphis, Tenn., armory group. The shield over main entrance (see also page 16) is precast concrete. Walk C. Jones & Walk C. Jones, Jr., architects; Gardner & Howe, engineers. Built by WPA. Hitchins Photos.*



*S. Naval and Marine Corps Reserve Armory, Los Angeles, a huge architectural concrete building designed by Stiles Clements, architect Los Angeles, and built by WPA. WPA Photo.*





*Armory at Long Beach, Calif., designed by California State Division of Architecture and built by George Mittry, Los Angeles. Winstead Photo.*



*Armory and municipal auditorium, Sheboygan, Wis., designed by Edgar A. Stubenrauch, of Sheboygan, and built by WPA. WPA Photo.*



*Huge Seattle Armory. Architects were A. M. Young & F. A. Nardmore, Seattle. A. D. Belanger Co., Everett, contractor. Dudley Photo.*



*Falls City, Neb., Armory was designed by Eugene F. Adams, local architect. Built in 1941 by WPA labor. PCA Photo.*



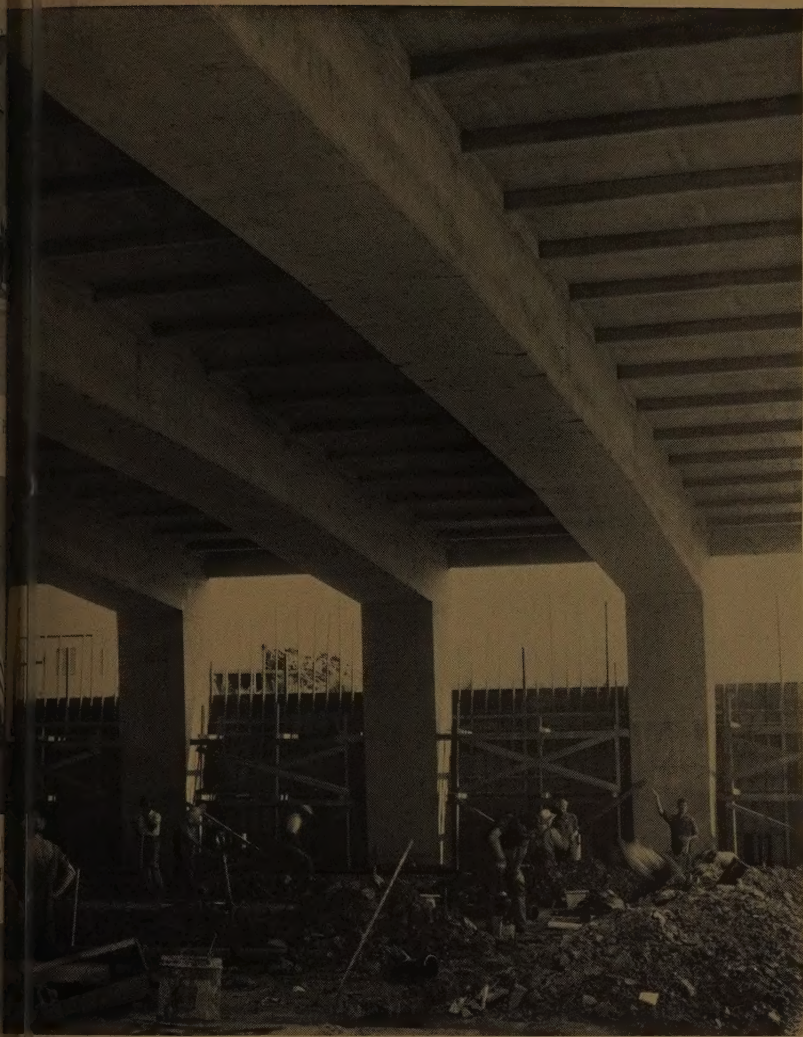
*One of two national guard equipment buildings in Wisconsin is located at Milwaukee. Roger Kirchoff, state architect; WPA project. WPA Photo.*



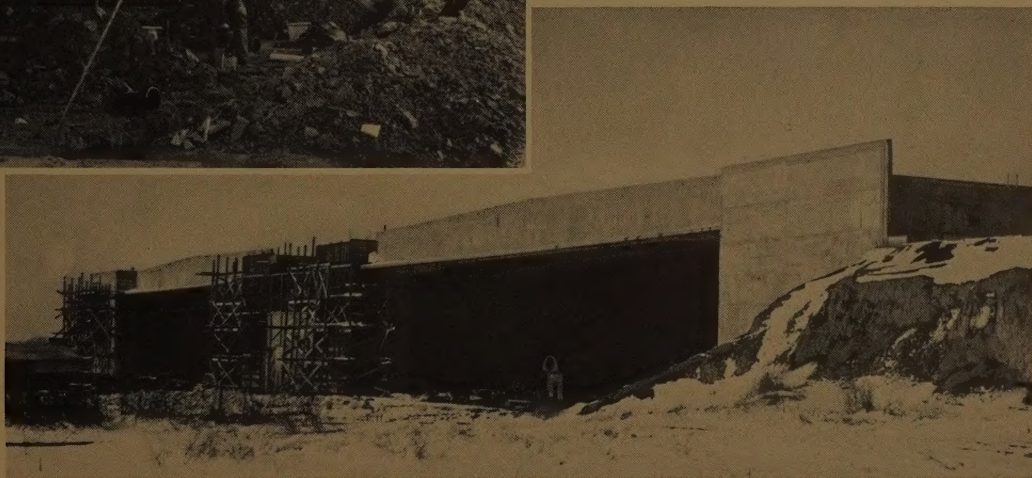
*Armory at Stoughton, Wis., is also used as school gymnasium. Law, Law & Potter, architects of Madison, Wis. Built by WPA. WPA Photo.*



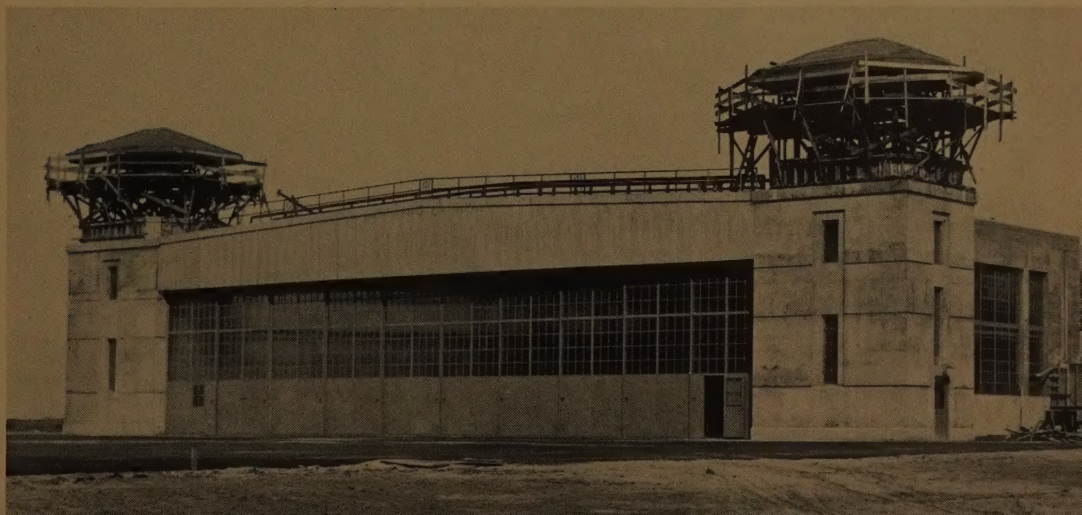
*Fort Whiting Post, Alabama National Guard, Mobile, Ala. Fred W. Clarke, architect of Mobile. WPA was the builder. Overbey Photo.*



*National guard hangars at Des Moines, Iowa, are reinforced concrete with 151-ft. spans. Bents of hollow rigid frame construction support a concrete girder roof with 3-in. slab. William N. Nielsen, architect and engineer; Les Forsyth, structural engineer, both of Des Moines. Construction by WPA. WPA Photos.*



*National guard hangar at Camp Williams, Wis., was designed by the state architect, Roger ... and built in 1941 by ... P.A. Photo.*





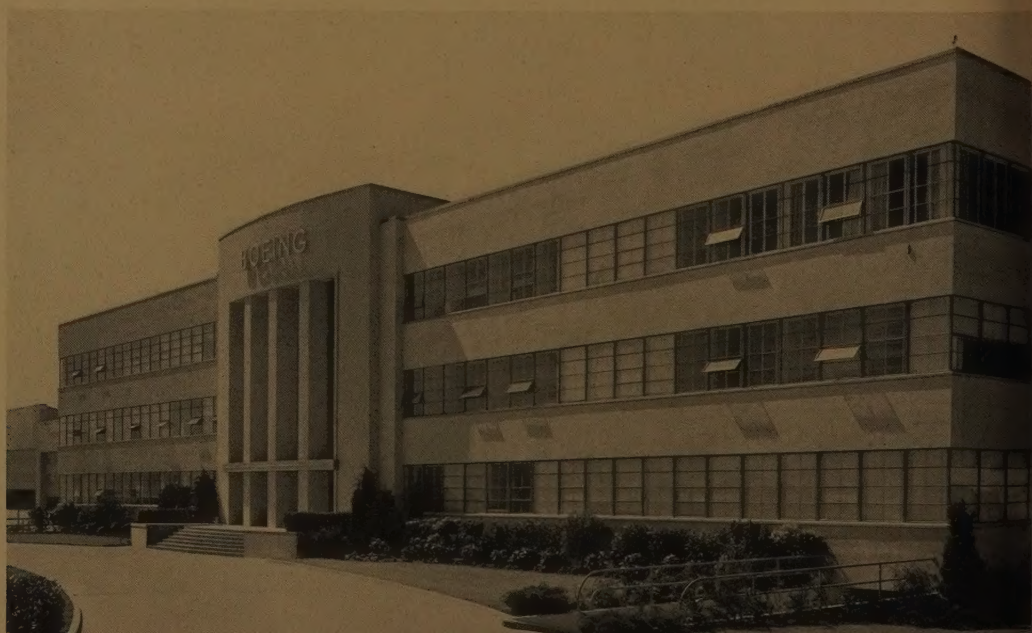
# War Industry

THIS second world war is a war of machines, and it is widely agreed that the nation or group of nations that can outbuild all others will win it.

When America determined ten years ago to be the arsenal for the United Nations this country had the world's greatest industrial plant, but its industry was not specialized for war. To turn the nation's skills and resources into planes, tanks, guns and ships required not only changing of large portions of existing plants and equipment to war work, but construction of many new buildings.

Speed was essential in this war building program, and the rapidity with which concrete structures could be erected and finished ready for operation has made it the important material of many industrial plants.

*Office of Boeing Aircraft Co. is a fine example of concrete employed to give architectural distinction to an industrial structure. The Austin Co. designed and built this important building. Brown Photos.*





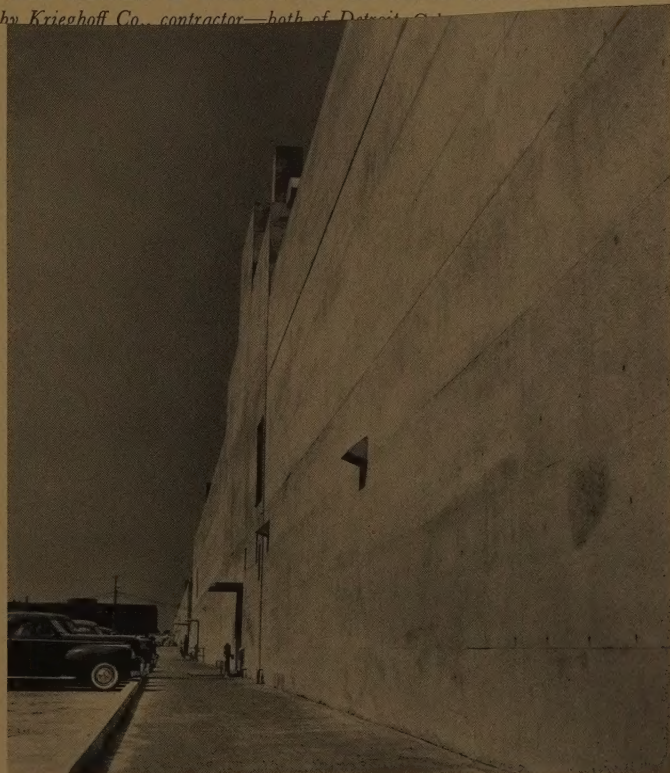
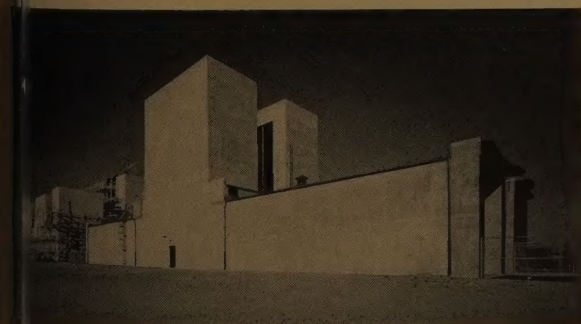
Large supplier of fabricated metals on the West Coast is Ducommun Metal & Supply Co., which has just recently moved into a new architectural concrete plant. Albert C. Martin of Los Angeles was the architect, and Joshua H. Marks-Charde Co., the contractor. Wolff Photo.

Working with some of the vital materials needed for war production is Bohn Aluminum & Brass Co. This new concrete addition to the Bohn plant was designed by Buckheit & Stuchell, architects, and built by Krieghoff Co., contractor—both of Detroit, Mich.



Engine test house, built for United Aircraft Corp., in 1937. Designed by Albert Kahn, Inc., Detroit, and built by R. G. Bent Co., Hartford, Conn. Photos from United Aircraft Corp.

Another test house for United Aircraft, also designed by Albert Kahn, Inc., and built by R. G. Bent Co., was erected in 1939.





*Concrete has*  
**WHAT IT TAKES**  
*for war construction*

**FIRE PROTECTION**—helps prevent fires or check their spread; minimizes fire loss whatever the cause. Concrete won't burn.

**STAMINA**—great strength, rigidity, stability to resist war hazards.

**CONSERVES CRITICAL MATERIALS.** Many concrete structures require none.

**SAVES TRANSPORTATION**—the bulk of concrete materials is usually found locally.

**SPEEDS THE JOB**—a rapid, all-weather type of construction.

**ADAPTABLE** to practically all types of durable construction.

**ECONOMICAL**—concrete's durability means less war-time drain on labor for repairs and maintenance, less upkeep cost, less final cost.

*Our technical staff is ready to help engineers and architects with concrete design and construction problems.*

**PORTLAND CEMENT ASSOCIATION**

33 West Grand Avenue, Chicago, Ill.

*Buy War Stamps and Bonds*

PRINTED IN U. S. A.